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The New Home Energy Auditing Standard

What does it mean for the Industry?

EfficiencyFirst Ohio

My Background

- Bacharach
- Testo
- BPI
- RESNET
- ACCA-QI
- GAMA-AHRI
- OMA

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Currently BPI approved standards

Approved Technical Standards

BPI makes an ongoing effort to grow the building performance industry by developing essential industry standards to enable quality and consistency by ensuring the entire home performance and weatherization workforce is following the same strict protocols – in every city and town, across each county, throughout each state and across the nation.

Click on a title below to download the approved BPI Technical Standards.

- **Air Conditioning & Heat Pump Professional**
- **Building Analyst Professional**
- **Heating Professional**
- **BPI-104: Envelope Professional**
- **Manufactured Housing Professional**
- **Multifamily Building Analyst Professional**
- **Multifamily Energy Efficient Building Operator**
- **Multifamily Hydronic Heating Professional**

BPI & ANSI

- July 13, 2010
  - BPI is approved by the American National Standards Institute, Inc. (ANSI) as an accredited developer of American National Standards
- A formal approval
- Third-party verification of the fairness, openness and balance

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Existing BA Standard: *"Scope"*

- Pre and post-installation blower door tests when major air or duct-sealing
- Blower door tests compare to the Building Airflow Standard (ASHRAE 62-89 compliance)
- Mechanical ventilation may be required
- Pre and post-installation combustion safety inspection for envelope and/or heating system changes
- Gas line inspected /repaired
- Failure of the combustion safety test requires repairs
- Appropriate inspection and diagnostic tests must be included in the work scope when attic insulation and/or ventilation are specified.
- Leakage paths given highest priority

NEW HEA Standard: Scope

- Criteria for a ***building-science-based*** home evaluation *(residential low rise buildings)*
  - Energy usage
  - Durability
  - Occupant health & safety
  - Comprehensive scope of work
    - Detailed home improvements
    - Cost-benefit analysis
    - Menu of choices

Consumer Oriented

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NEW HEA Standard: Topics

- General Energy Audit Requirements
- Health-and-Safety Related Requirements
- Disclosure and Ethics
- Cost-Benefit Analysis
- Work Scope Combustion Appliance Testing
- Indoor Air Quality and Ventilation
- Moisture Control
- Building Enclosure Performance
- Heating and Cooling (HVAC) Efficiency
- Baseload Energy Efficiency

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HEA: Audit Requirements

- A report
  - energy programs, incentives, regulations, energy costs, fuel process, and local energy-consumption levels
- Building-science principles
- Appropriate diagnostic equipment
- Look for improving energy efficiency, minimizing health and safety impact on performance upgrades
- Base load energy use analysis
  - advice on reduction strategies
- Work scope
  - best-practice installation procedures
  - recommend comprehensive & specific energy efficiency and health/safety measures
  - Tailored to the "patient"

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CAZ numbers

- Section 7.5 in HEA
  - More detailed on process
  - If the change in pressure is more than 5 Pa negative specify measures to mitigate
  - spills for longer than 1 minute, the audit report shall specify measures to mitig[illegible]illage.
- Draft readings gone

Too simple?

CAZ Depressurization Limits

Ve[illegible]nditio[illegible]	Limit (Pascals)
Orphan natural draft wat[illegible]eat[illegible]ft[illegible]g outside chimneys)	-2
Natural draft boiler [illegible]rna[illegible]ommonly vented with water heater	-3
Natural draft b[illegible]or fu[illegible]ce [illegible]th vent damper commonly vented with water hea[illegible]	-5
Indivi[illegible]n[illegible]al d[illegible] boiler or furnace	-5
[illegible]nan[illegible]lly a[illegible]ted [illegible]ft boiler or furnace commonly vented with water h[illegible]r	-5
Me[illegible]ically assisted draft boiler or furnace alone, or fan assisted DHW [illegible]ne	-15
Exhausto chimney-top draft inducer (fan at chimney top); High static pressure flame retention head oil burner; Sealed combustion appliances;	-50

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Cost-Benefit Analysis

- Audit shall include a comprehensive package of Energy Conservation Measures (ECMs)
- Using:
  - DOE approved software
  - BPI accredited software
  - Regional housing stock current energy price based model
- 1 Year analysis of energy consumption records (when records are available)
  - To justify estimates of ECM savings

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Software modeling: BESTEST-EX

- **Building Energy Simulation Test for Existing Homes**
  - **Stakeholder process**
  - **Standard for qualifying third party audit software tools**
- Software Developers
  - AEC (RemRate)
  - Apogee (EnergyInsights)
  - CSG (HomeCheck)
  - FSEC (EnergyGauge)
  - ICF (BEACON HEA)
  - ORNL (NEAT)
  - PSD (TREAT)
  - Recurve

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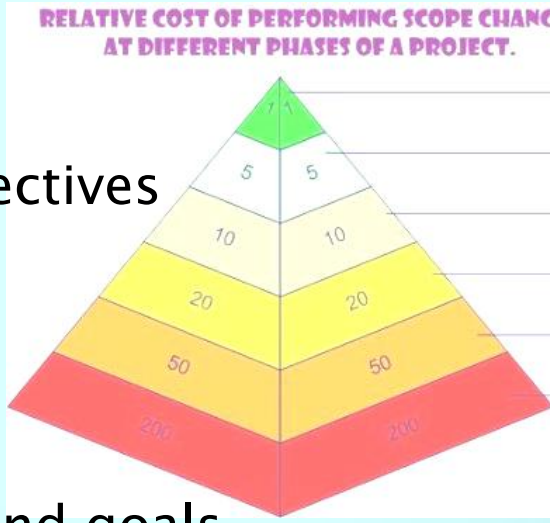
Work Scope



- Detailing proposed ECMs
- Meld diagnostic evaluation and customer objectives
- FOULS: Basing on
  - YOUR FAVORITE product line or services
  - Convenience
- REQUIRED:
  - Customer interview: understand priorities and goals
  - Prioritize health-and-safety issues by urgency/importance
  - Prioritize ECMs, repairs, renovations by cost-effectiveness, feasibility, and customer objectives
  - Pre-work and post-work verification (eg. diagnostic testing)
    - includes all measures identified in audit

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Status of the HEA Standard

- Published as a BPI Standard; now entering a public comment period to become an American National Standard.
- Feedback to
  - standards@bpi.org

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Next up from BPI:

- Three new certifications rolling out:
  - Whole House Air Leakage Control **Installer** (includes dense packing of side walls)
  - Whole House Air Leakage Control **Crew Chief**
  - Accessible Areas Air Leakage Control Installer
- Home Performance Analyst/Energy Auditor Certification under development

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HPXML: Data Exchange

- BPI announcement Oct 20, 2010
- HPXML: Home Performance Extensible Markup Language
- Open data collection and reporting tool
- For use by all sectors of the HP industry
- Easily exchange information online
- In use by thousands of contractors:
  - New York
  - Northern Virginia HPwES
- www.homeperformancexml.org

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Other helpful info

- Quick REFS
- SWS Attic Air Sealing
- All at WWW.BPI.ORG

Quick reference standards

Use these handy guides as a compendiums to the standards. Click on a title below to review and download.

- Combustion Safety Test Procedure for Vented Appliances--Gold Sheet
- Converting Between CFM 50 and Natural Airflow--Green Sheet
- Distribution Efficiency Look-Up Table--Blue Sheet
- Effective R-Values for Batt Insulation'--Yellow Sheet

Quick Reference Testing In/Testing Out Requirements for BPI Accredited Contractors

- A/C Heat Pump Standards
- Building Analyst Standards
- Heating Standards
- Shell Standards

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CONCLUSION

- What does the new HEA standard mean?
  - For CONTRACTORS
    - Investment in training and software
    - Uniformity in work – bidding
    - More confident proposals
  - For CONSUMERS
    - Confidence in the *PROCESS*
    - Uniformity in work – true savings
  - For the Home Energy Auditing Industry
    - A chance to get it right
    - Do right by consumers
    - Create a vibrant marketplace with satisfied customers

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Thank you!

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